

What is claimed is:

1. An orthopedic device for securing two or more bone portions, said device

5 comprising:

an elongate member configured for engagement to the two or more bone portions and allowing translational or rotational movement for a first one of the two or more bone portions relative to a second one of the two or more bone portions;

10 a reinforcing component composed of a biodegradable material and engaged to the elongate member to inhibit the translational or rotational movement for a first one of the two or more bone portions relative to a second one of the two or more bone portions; and

at least one bone fastener for fixedly securing the elongate member to at least one of the two or more bone portions.

15 2. The device of claim 1, wherein at least some of the load on said device is transferred to two or more bone portions as said reinforcing component degrades.

20 3. The device of claim 1, wherein said elongate member allows restricted translational or rotational movement of two or more bone portions after said reinforcing component degrades.

4. The device of claim 1, wherein the elongate member is composed of a biocompatible metal.

5. The device of claim 1, wherein the elongate member is formed of an elastic material.

5 6. The device of claim 1, wherein said elongate member is composed of a biocompatible metal or a metal selected from the group consisting of: nitinol, titanium, titanium-vanadium-aluminum alloy, cobalt-chromium alloy, cobalt-chromium-molybdenum alloy, cobalt-nickel-chromium-molybdenum alloy, biocompatible stainless steel, tantalum, niobium, hafnium, tungsten, and alloys thereof.

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7. The device of claim 1, wherein said reinforcing component degrades within two years while said elongate member remains engaged to the two or more bone portions.

8. The device of claim 1, wherein said reinforcing material has an initial mass upon implantation and the reinforcing material degrades to less than half its initial mass within one year.

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9. The device of claim 8, wherein said elongate member allows restricted translational or rotational movement of two or more bone portions after said reinforcing component degrades.

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10. The device of claim 1, wherein said reinforcing material retains at least half of its initial mass for a time period of greater than one year.

11. The device of claim 1, wherein said reinforcing element is composed of a material selected from a group consisting of: poly(amino acids), polyanhydrides, polycaprolactones, polylactates, polyglycolates, poly(lactic-glycolic acid), polyorthoesters, and blends thereof.

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12. The device of claim 1, wherein the elongate member is a bone plate.

13. The device of claim 12 wherein the bone plate is configured with a plurality of voids.

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14. The device of claim 13 wherein the reinforcing material is disposed in the plurality of voids.

15. The device of claim 12 wherein the bone plate is imperforate.

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16. The device of claim 12 wherein the reinforcing material encases at least a portion of the bone plate.

17. The device of claim 12 wherein the bone plate comprises a first portion  
20 configured to allow the bone plate to be deformed.

18. The device of claim 17 wherein the bone plate comprises a second portion adjacent to the first portion, where said second portion is configured to resist deformation.

19. The device of claim 18 wherein the first portion has a first cross sectional area and the second portion has a second cross sectional area greater than the first cross sectional area.

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20. The device of claim 19 wherein the first portion comprises a plurality of voids and the second portion is imperforate.

21. The device of claim 20 wherein the reinforcing component is disposed in the  
10 plurality of voids.

22. The device of claim 12, wherein said reinforcing material has an initial mass upon implantation and the material degrades to less than half its initial mass within one year.

15 23. The device of claim 12, wherein said reinforcing material retains at least half of its initial mass for a time period of greater than one year.

24. The device of claim 1, wherein the elongate member is an orthopedic rod.

20 25. The device of claim 24, wherein the orthopedic rod is a spinal rod.

26. The device of claim 24, wherein the spinal rod is configured with a plurality of voids.

27. The device of claim 24, wherein the reinforcing material is disposed in the plurality of voids.

5 28. The device of claim 24, wherein the orthopedic rod is imperforate.

29. The device of claim 24, wherein the reinforcing material encases at least a portion of the orthopedic rod.

10 30. The device of claim 24, wherein the orthopedic rod comprises a first portion configured to allow the orthopedic rod to be deformed.

31. The device of claim 30, wherein the orthopedic rod comprises a second portion adjacent to the first portion, where said second portion is configured to resist deformation.

15 32. The device of claim 31, wherein the first portion has a first cross sectional area and the second portion has a second cross sectional area greater than the first cross sectional area.

20 33. The device of claim 30, wherein the first portion comprises a plurality of voids and the second portion is imperforate.

34. The device of claim 33 wherein the reinforcing component is disposed in the plurality of voids.

35. The device of claim 24, wherein the orthopedic rod is hollow and defines an interior lumen and wherein the reinforcing material is disposed in the interior lumen.

36. The device of claim 24, wherein said reinforcing material has an initial mass upon implantation and the material degrades to less than half its initial mass within one year.

10 37. The device of claim 24, wherein said reinforcing material retains at least half of its initial mass for a time period of greater than one year.

38. The device of claim 1 wherein the elongate member comprises means for allowing movement of the first bone portion relative to the second bone portion.

15 39. A method for treating a bone defect, said method comprising fixedly attaching the device of claim 1 to two or more bone portions.

40. A method for treating a bone defect, said method comprising providing an orthopedic device including an elongate member configured to be deformable *in vivo*, and a reinforcing component encasing at least a portion of the elongate member, said reinforcing component comprising a biodegradable material, formulated to inhibit deformation of the elongate member; and

securing a first end of the elongate member to a first bony structure and securing a second end of the elongate structure to a second bony structure.

41. The method of claim 40 wherein securing comprising fixedly securing the first  
5 end to the first bony structure using a bone screw, a suture or a bone cement.

42. The method of claim 40 wherein said securing comprises securing a first end of the elongate member to a first vertebra and securing the second end of the elongate member to a second vertebra.

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43. The method of claim 40 comprising deforming the elongate member into a first configuration prior to securing the first end to a first bony structure.

44. The method of claim 43 comprising combining the reinforcing component and the  
15 elongate member after the elongate member has been deformed.

45. The method of claim 44 wherein the reinforcing component comprises a material selected from the group consisting of: poly(amino acids), polyanhydrides, polycaprolactones, polylactates, polyglycolates, poly(lactic-glycolic acid), polyorthoesters, and blends thereof.

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46. The method of claim 40 comprising combining a bone growth material with the orthopedic device to promote arthrodesis.